

CLAIMS

1. An organism tissue suturing apparatus for suturing a penetrated hole formed subcutaneously in a tissue membrane of an organism comprising:

5 a body part, with a predetermined length, having a rotary portion and can be inserted into said tissue of an organism from said hole; a needle member accommodated in a portion, inside said body part, rearward from said rotary portion; and a pressing mechanism for advancing said needle member from a side surface of said body part and pressing said needle member into said rotary portion,

10 wherein said rotary portion has a needle member receiving portion for receiving essentially a front end of said needle member pressed into said rotary portion by said pressing mechanism, with said rotary portion disposed in said tissue of said organism; and said needle member has a suturing thread or a duct for said suturing thread.

15 2. An organism tissue suturing apparatus for suturing a penetrated hole formed subcutaneously in a tissue membrane of an organism comprising:

20 a body part, with a predetermined length, having a rotary portion and can be inserted into said tissue of said organism from said hole; two hollow needle members accommodated in a portion, inside said body part, rearward from said rotary portion; a needle member operation portion for advancing said hollow needle members toward said rotary portion from a side surface of said body part; and two openings disposed at a rear portion of said body part and communicating with an inside of said two hollow needle members,

25 wherein said rotary portion has two needle member receiving portions for receiving a distal end of one of said hollow needle members and that of the

other of said hollow needle members respectively pressed out of said body part; and a connection duct communicating with said two needle member receiving portions; and

5 a duct for a suturing thread is formed in a range from one of said two openings to the other of said openings through an inside of one of said two hollow needle members, said connection duct, and an inside of the other of said two hollow needle members, when said two needle member receiving portions receive said hollow needle members respectively.

10 3. An organism tissue suturing apparatus according to claim 2, further comprising a suturing member which can be inserted into said duct for a suturing thread; and said suturing member includes a guide portion linearly formed of an elastic material and a suturing thread portion provided on said guide portion.

15 4. An organism tissue suturing apparatus according to claim 2 or 3, wherein said rotary portion has a thread pull-out slit extending from an upper surface thereof and communicating with said two needle member receiving portions and said connection duct.

20 5. An organism tissue suturing apparatus according to any one of claims 2 through 4, further comprising a rotary portion towing wire which extends inside said body part and is fixed to said rotary portion at one end thereof, wherein said body part has a supporting pin for rotatably supporting said rotary portion; and said rotary portion has a side-surface opening, for receiving said supporting pin, formed long and axially extending to allow sliding of said supporting pin.

25 6. An organism tissue suturing apparatus according to any one of claims 2 through 5, further comprising a rotation angle restriction function permitting

a rotation of said rotary portion between a state in which said rotary portion is on an approximate extension line of an axis of said body part and a predetermined angle less than 90 degrees.

7. An organism tissue suturing apparatus according to any one of claims

5 2 through 6, further comprising an urging member for urging said needle member operation portion or said hollow needle member rearward and a stopper means stopped said hollow needle members a position of pressed by said needle member operation portion.

8. An organism tissue suturing apparatus according to any one of claims

10 2 through 7, wherein said opening is formed at a rear end of said needle member operation portion.

9. An organism tissue suturing apparatus for suturing a penetrated hole formed subcutaneously in a tissue membrane of an organism comprising:

15 a body part, with a predetermined length, having a rotary portion and can be inserted into said tissue of said organism from said hole; at least one needle accommodated in a portion, inside said body part, rearward from said rotary portion; a thread joined with said needle; and a pressing member for advancing said needle from a side surface of said body part and pressing said needle into said rotary portion,

20 wherein said rotary portion has a needle receiving portion for receiving said needle pressed into said rotary portion by said pressing member, with said rotary portion disposed in said tissue of said organism.

10. An organism tissue suturing apparatus according to claim 9, further comprising a rotation angle restriction function permitting a rotation of said 25 rotary portion between a state in which said rotary portion is on an approximate extension line of an axis of said body part and a predetermined

angle less than 90 degrees.

11. An organism tissue suturing apparatus according to claim 9 or 10, further comprising a rotary portion towing wire which extends inside said body part and is fixed to said rotary portion at one end thereof, wherein said body part has a supporting pin for rotatably supporting said rotary portion; and said rotary portion has a side-surface opening, for receiving said supporting pin, formed long and axially extending to allow sliding of said supporting pin.

12. An organism tissue suturing apparatus according to any one of claims 9 through 11, further comprising an urging member for urging said pressing member rearward.

13. An organism tissue suturing apparatus according to any one of claims 9 through 12, wherein said body part has two needles accommodated in a portion, inside said body part, at a front side thereof; threads joined with said two needles respectively; and two pressing members for advancing said two needles respectively from a side surface of said body part and pressing said needles respectively into said rotary portion, wherein said needle receiving portion can receive said needles pressed into said rotary portion by said pressing members, with said rotary portion disposed in said tissue of said organism.

14. An organism tissue suturing apparatus for suturing a penetrated hole formed subcutaneously in a tissue membrane of an organism comprising:
a body part, with a predetermined length, having a rotary portion and can be inserted into said tissue of said organism from said hole; a needle member accommodated inside said body part; an anchor accommodated in said needle member; a thread joined with said anchor; a needle member

operation portion for advancing said needle member toward said rotary portion from a side surface, of said body part, disposed at a portion thereof rearward from said rotary portion; and an anchor pressing member for exiting said anchor from a front end of said needle member and pressing said anchor 5 into said rotary portion,

wherein said rotary portion has a anchor receiving portion for receiving said anchor pressed into said rotary portion by said anchor pressing member, with said rotary portion disposed in said tissue of said organism.

15. An organism tissue suturing apparatus according to claim 14, further 10 comprising a rotary portion towing wire which extends inside said body part and is fixed to said rotary portion at one end thereof, wherein said body part has a supporting pin for rotatably supporting said rotary portion; and said rotary portion has a side-surface opening, for receiving said supporting pin, formed long and axially extending to allow sliding of said supporting pin.

15. 16. An organism tissue suturing apparatus according to claim 14, further comprising a rotation angle restriction function permitting a rotation of said rotary portion between a state in which said rotary portion is on an approximate extension line of an axis of said body part and a predetermined angle less than 90 degrees.

20. 17. An organism tissue suturing apparatus according to any one of claims 14 through 16, further comprising an urging member for urging said needle member operation portion or said needle member rearward.

18. An organism tissue suturing apparatus according to any one of claims 14 through 17, further comprising an urging member for urging said anchor 25 pressing member rearward.

19. An organism tissue suturing apparatus according to any one of claims

14 through 18, wherein said a body part has two needle members accommodated inside said body part; two anchors accommodated in said needle members respectively; threads joined with said anchors respectively;

5 wherein said needle member operation portion can project said two needle members toward said rotary portion from a side surface of said body part at a front side thereof, said anchor pressing member can exit said two anchors from a front end of said needle member and pressing said two anchors into said rotary portion, and said anchor receiving portion can receive said two anchors pressed into said rotary portion by said anchor pressing member, with said rotary portion disposed in said tissue of said organism.

10 20. An organism tissue suturing apparatus according to any one of claims 1 through 19, further comprising a liquid-filling lumen, extending inside said body part, whose one end is open at a position in the vicinity of a front end thereof which can be inserted into a tissue of an organism and whose other 15 end is open at a rear side of said body part; a three-way cock connected to said liquid-filling lumen; a pulsation confirmation member mounted on one port of said three-way cock; and a liquid-filling port formed on another port of said three-way cock,

20 wherein said three-way cock has an operation portion for selectively communicating said liquid-filling lumen with said one port thereof and said another port thereof.

21. An organism tissue suturing apparatus according to any one of claims 1 through 20, wherein said rotary portion has a guide wire insertion lumen at a front side thereof.

25 22. An organism tissue suturing apparatus according to any one of claims 1 through 21, further comprising an introduction wire extending inside said

rotary portion, with a front side protruding from said rotary portion and with a rear side thereof fixed to said body part, without said introduction wire being fixed to said rotary portion.

23. An organism tissue suturing apparatus according to any one of claims

5 1 through 22, further comprising a tube slidably accommodating a front side of said rotary portion therein; and a connection wire whose front side is fixed to said tube and whose rear side is fixed to said body part, without said connection wire being fixed to said rotary portion.

24. An organism tissue suturing apparatus according to any one of claims

10 1 through 23, further comprising a position confirmation mechanism that includes a projectable portion formed at a position of a body part which can be inserted into a blood vessel or a body cavity from said hole in such a way that said projectable portion has a projection state of projecting from said body part when said projectable portion is disposed in said blood vessel or said 15 body cavity and a non-projection state of not projecting from said body part until said projectable portion reaches said blood vessel or said body cavity; and a display portion for discriminating said projection state and said non-projection state of said projectable portion from each other.